The Excavating Engineer

Vol. 18 MAY 1924 No. 5

A 3⅓-Million Cubic Yard Job on the Burlington

Description of Morris & Dougherty's Big Contract for the Construction of 18 Miles of Cut-off Between Frederick and Vermont, Illinois

(For Additional Photographs See Center Page Spread)

AN editorial appearing on page 186 of this issue calls the attention of its readers to a report of recent investigations made by the United States Chamber of Commerce, indicating that the passenger and freight business will increase to alarming proportions in the next ten years. It predicts that some 38,000 miles of new track will have to be built to take care of the increased freight and passenger business.

If you want to catch Mr. J. P. Dougherty, you'll have to get up early in the morning before he hikes out to the job. Mr. Dougherty attempts to see part of the new line every day, and ten or fifteen miles walking to me it is "nothing in his young life."

Railroad work, as a matter of fact, is picking up considerably, and railroad contractors are optimistic. A glance through current papers in this field reveals a favorable indication of this fact.

Among the largest and most extensive railroad jobs under construction today is that of the Chicago, Burlington & Quincy Railroad cutoff in Illinois between Vermont and Frederick, involving some 3⅓ million cubic yards of excavation over a distance of 18 miles, and employing thirteen shovels and one dragline excavator, in addition to a great fleet of locomotives and dump cars.

As we go to press, 50% of the work has been completed.

The Purpose of the Work

The reason for this work is obvious. For many years a great deal of coal from the Southern Illinois District, which finds its principal market in Chicago and vicinity, has been shipped north over that branch of the Burlington Railroad known as the Beardstown Division. Between Vermont and Frederick, the grade has been so excessive for north-bound shipments that two helper engines have been kept at Browning, eight miles north of Beardstown, to assist in the haul of long freight drags between those two points.

In order to eliminate this difficulty, a topographical survey was made during the summer of 1916 between Vermont and Frederick by C. L. Persons, Assistant Chief Engineer of the Burlington, and on March 5, 1922, William Thomas, now Engineer of Construction on the work, made a survey from Vermont to Frederick on a .30% grade on the west side of Sugar Creek, but later on it was decided that a .25% grade could be had on the east side. This survey was made and the line was adopted. Contractors were invited to bid on the work May 15, 1923, bids to be in Chicago on May 28th. On May 31st, the contract was awarded to Morris & Dougherty of St. Paul.

The new line will be three miles shorter than the old line and will be operated on a .25% grade with a maximum curvature of 2°, while the old line was operated on a 1.2% grade with a maximum curvature of 4°. It will be used exclusively for coal trains going north, while the traffic over the old line will be confined to local freights, passenger trains, and empty coal trains going south.

Morris & Dougherty are one of the oldest and best-known railroad contracting concerns in existence, with a long and splendid record of Burlington work to their credit. The work was originally divided into twelve sections, and contracts sublet to various contractors to be named later. The bridge work for the entire line was sublet to Peppard, Fulton & Co. of Superior, Wisconsin. One of the sections, the largest of the twelve, was retained by Morris & Dougherty, which they are operating themselves, while another section is being handled by Morris & Dougherty in conjunction with Dougherty & Slane.

Sections 1, 2 and 3

Sections 1, 2 and 3 (1 and 2 having been merged later on for more convenient identification), were awarded in one contract to A. C. Dickson of St. Paul. The grading on this contract was light but was spread over a distance of 4 miles. An Austin-Western grader and twenty team outfits were used for shaping up and leveling off the cuts and fills in preparation for the laying of the tracks. When this was done, a small revolving ¾-yard shovel was used to complete the excavation. This shovel loaded into 30 Western and Pettler two-yard cars, while three 10-ton Davenport locomotives were employed to haul them to the dump. The work on this contract involves about 200,000 yards. On Section 2 there will be an overhead farm crossing built of timber and one underground farm crossing of wood pile construction. On Section 3, however, there will be no crossings of any kind. The work on this job is about 40% completed.

Section 4

Section 4 was not sublet, but is being handled by Morris & Dougherty who have the original contract. This section is the largest one of the twelve sections and involves 682,000 yards of excavation in all. The largest cut contains 530,000 yards of excavation alone, most of the material of which is being used in a hundred-foot fill on the north end of the section. The material consists of a yellow sticky clay at the top, with blue clay below.

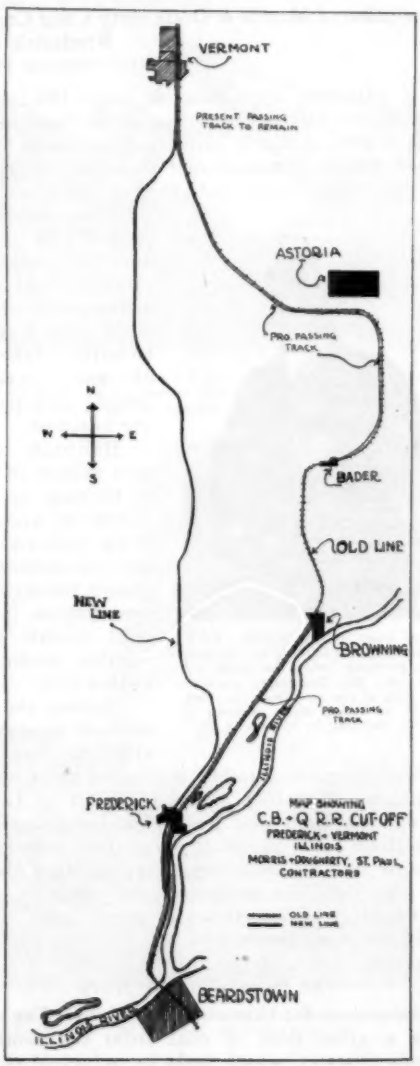
It was necessary to shape the cuts in preparation for the laying of the track, and for this purpose two Erie ¾-yard shovels and wagons were used. Later a Bucyrus 50-B dragline excavator with a 1¾-yard bucket, in addition to a 1-T Monighan, was engaged in shaping up the cuts to get workable grades.

When this work was completed, however, the Bucyrus 50-B dragline was converted to a shovel with a 1¾-yard dipper, and at the present time it is loading sixty 4-yard Western and Pettler cars, drawn by six locomotives of Vulcan, Porter and Davenport manufacture. Twenty more cars will be added to the fleet later on.

Later on, however, the 50-B shovel will be replaced by another Bucyrus, a 70-C railroad-type shovel on caterpillars, and the former will be removed to Section 6, the 1¼-yard Osgood now operating on Section 6 to replace a ¾-yard Erie. The Erie will be moved to Section 4 where it will be used for light grading purposes.

The material excavated on this section consists for the most part of heavy blue clay which is exceedingly difficult to handle. The caterpillars which were installed under the Bucyrus 70-C shovel have proven so eminently satisfactory on this sticky clay floor that a second set will be installed by the time this issue is off the press.

By the time this issue reaches the hands of our readers, the work on this section will have begun operating on a night shift. The 70-C, which is to replace the 50-B Bucyrus, is to be equipped with electric headlights made by the Moon Manufacturing Company. Pyle-National lighting equipment will be installed for use on the locomotives. The line will cross State Highway No. 31 in a 50-foot cut with a 100-foot overhead bridge, taken from an old Chicago, Burlington & Quincy branch



Rough Sketch Showing Old and New Lines

line. In addition to this crossing there will be a 15-foot x 18-foot double arch culvert 400 feet long at Adams Branch, a tributary to Sugar Creek, heretofore mentioned. The Superintendent in charge of this section is W. R. Powrie, with G. T. Young and N. W. Pendleton as his assistants. The work on this section is about 50% completed.

Section 5

Section 5, which involves approximately 300,000 cubic yards of material, was sublet to Malloy & Fowler, also of St. Paul. The work on this section is somewhat less difficult than that of Section 4, but entails the excavation of a number of heavy cuts, some of which have a maximum of 65 feet, with from 55 to 60-foot fills. One feature of this particular section is the double switchback shown in one of the views on our center page spread, which is somewhat unusual. The material to be put into the fill shown in the foreground of this view could not have been hauled conveniently on a straight line due to the prohibitive grade.

In order to enable the work trains to negotiate this grade conveniently, the construction track was laid in a light cut, swinging to one side of the right-of-way for about 300 feet, and then back again across the right-of-way describing a half circle, then doubling on itself back again to the main line.

The equipment used on this section consists of a ¾-yard revolving shovel, three 7-ton Whitcomb gasoline locomotives, and 40 two-yard cars of Western and Pettler make. A 1¼-yard shovel will have replaced the ¾-yard machine by the time this issue is into the hands of our readers. The smaller shovel will be moved back to Section 4.

In order to shape up the cuts and to eliminate heavy hauling grades, a 15-team outfit with slip-scrapers and fresnos were put to work. William Stewart, of St. Paul, had the contract for this work. On this section there is no bridge work, the only crossing to be built being one grade crossing.

Section 6

Section 6 was divided into two contracts. Finley, Danielson & Swanson of St. Paul were given the subcontract for the shovel work, while John Kinney, also of St. Paul, was awarded the contract for the light grading. The latter began early in the fall of 1923 with a team outfit. The work involved about 100,000 yards of side borrow, which was used for the base of the 366,000-yard fill at Harris Branch. This part of the work has been completed, and Finley, Danielson & Swanson are now pushing the work to an early completion.

They have on the work an Osgood 1¼-yard shovel, which will later be replaced by the Bucyrus 50-B shovel and moved to another section, in addition to two 12-ton Whitcomb gasoline locomotives and a number of 4-yard cars.

The work on this section consists of 406,000 yards and a considerable amount of concrete work. The excavation amounts to about 275,000 yards, most of which is being put into the 90-foot fill which separates Sections 6 and 7. John Kinney, who had the contract for the team borrow built the base of the fill to a height of about 25 feet, with the aid of two Holt tractors and two Russell graders.

Further work on this fill was done by Finley, Danielson & Swanson. The material consisted of hard stiff clay which made the shovel work exceedingly difficult.

There will be an overhead crossing in a 50-foot cut with a span of 100 feet. In addition to this, there will be a 458-foot bridge 90 feet high to be built on concrete piers, with steel towers and concrete slabs.

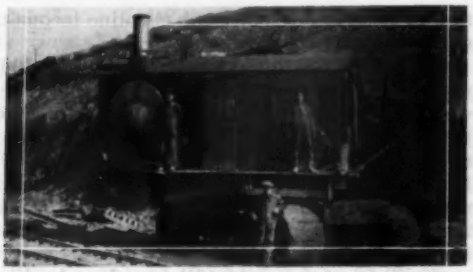
View showing shovel loading into dump trains. The locomotive in the foreground is gasoline driven. There are several of these on the work, all of which are Whitcomb.

Section 7

Section 7 was sublet to Charles Sherbing of St. Cloud, Minnesota. The section is 4500 feet in length and involves about 100,000 yards of excavation, consisting for the most part of heavy red clay. The excavation on this section is being done by a small ¾-yard shovel and two elevating graders. The hauling is done entirely by wagons. The maximum fill is 65 feet, which includes about 67,500 yards. In addition to the 458-foot concrete bridge separating Sections 6 and 7 mentioned above, there is only one public road overhead crossing in a 25-foot cut, which divides Sections 7 and 8. The work on this section is about 75% completed.

Section 8

The contract for Section 8 was placed into the hands of John Kenney, who recently moved over from his work on Section 7, which he completed a short time ago. This section is 4000 feet long, involving approximately 135,000 yards of excavation. In addition to the equipment used on Section 6, he is using thirty-five 1½-yard cars, drawn



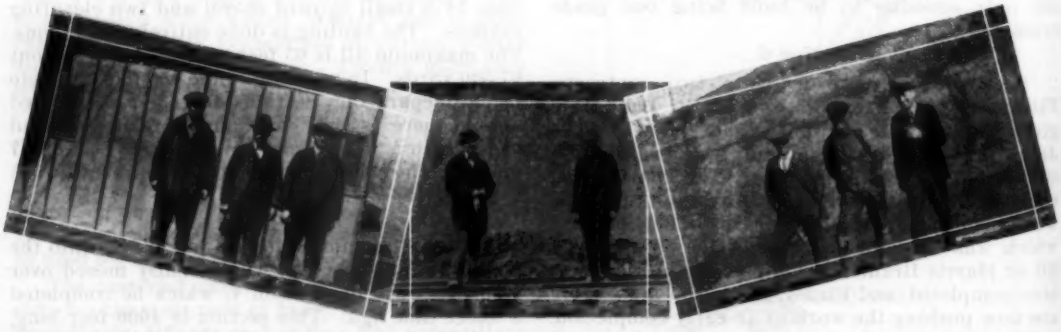
The crew on the 50-B. Standing near the boiler is Peder Pederson, who makes all the smoke; at the right is Carl T. Beaumont, who pulls the levers; below is R. N. Pendleton, who at that time was acting as pitman.

Here's the boy who pulls the levers on the 70-C which is operating on Section 10. His name is Charles Robinson, and he is the brother of George Robinson shown below with Mr. Slane.

John Boyd is one of the oldest associates of the company, having been with Mr. Dougherty for 23 years. He has charge of Morris & Dougherty's headquarters at Astoria.

We can't say just what they're doing in this picture, but anyway W. R. Powrie, Superintendent of Section 4, is standing at the left; Ed. Slane, of Dougherty & Slane, center, and J. P. Dougherty is at the right.

George Robinson, the operator of the 70-C on caterpillars, and Ed. Slane, of Dougherty & Slane, who have the contract on Section 12, in conjunction with Morris & Dougherty. Mr. Slane's partner is Henry M. Dougherty, brother of J. P., of Morris & Dougherty.



A few more of the men on the job. The picture at the left shows in the center William Powrie, the superintendent on Section 4 and his two assistants, N. W. Pendleton at the left and G. T. Young at the right. The center view gives us a peek at the firm of Malloy & Fowler, with Lee Fowler at the right and George Malloy at the left. The view at the right shows the three members of the firm of Finley, Danielson & Swanson.

by two 7-ton Plymouth locomotives, made up in 15-car trains to make the long hauls.

The bridge work on this section consists of only one undercrossing in a 26-foot fill, there being no concrete bridges or highway overhead crossings. The work on this section is about 30% complete.

Section 9

Jameson, Thoreen & Sanderson of Stillwater, Minnesota, have the contract for Section 9, involving approximately 315,000 yards of excavation. It contains one heavy cut of 150,000 yards, 70 feet at the deepest point, to be hauled to a 65-foot fill at the south end and another cut of about 80,000 yards. The excavation is being done by a small ¾-yard shovel and two graders, one Austin and the other a Russell, loading Western dump wagons, in addition to a 1¼-yard Osgood shovel loading 2-yard cars drawn by steam locomotives.

Jameson, Thoreen & Sanderson let about 60,000 yards of base of fill to Lanahan Bros. of Chicago, who used two Austin elevating graders drawn by horses. This work has been completed. There are no grade crossings of any kind on this section.

Section 10

McCullough & Cheney Co., Minneapolis, have the contract for Section 10. This section is one of the largest of the twelve and one of the most interesting. The total excavation amounts to approximately 610,000 yards over a distance of two miles.

There is a 91-foot fill, which will take about 271,000 yards material, and the cuts are heavy, some of which have a maximum depth of 75 feet.

W. F. Sherbing completed the base of the fill with the aid of one Russell grading machine and a team outfit, while an Osgood ¾-yard shovel was used for shaping up the cuts.

An interesting feature of this section is the changing of the channel of Sugar Creek for a distance of 500 feet, which crossed the line on the south end. This was done in order to eliminate the necessity of building additional undercrossings. Paddy McGraw, a Chicago contractor, had the contract for this work, and completed the job in excellent shape with fresnos and wheelers. In addition to this work, he used his equipment for taking out a few short choppy cuts a short distance north.

On this section there are two cuts which are comparatively heavy, this work being done by two Bucyrus 70-C railroad-type shovels.

After the shaping was done one of these shovels started from the north end, the other from the south. A large portion of the excavation is solid rock, which is being dumped into the 90-foot fill. Two Cyclone and Sparta drills are kept at work ahead of the shovels, and all of the rock must be blasted. The material is hauled in Western and Pettler dump cars drawn by 18-ton Davenport locomotives with 12 cars to a train.

The crossings on this section consist of one underground public crossing in a 35-foot fill.

Section 12

The contract for Sections 11 and 12, later combined into one section and known as Section 12, were retained by Morris & Dougherty, and are being handled by the latter in conjunction with Dougherty & Slane, also of St. Paul. This section appears at the south end of the line near Frederick, and together total approximately 550,000 yards of excavation over a distance of 4 miles.

Shaping up of the cuts was necessary preliminary to the heavy work. This was done by an Erie shovel and a Bucyrus 14-B, both ¾-yard machines.

The heavier work, however, which occurs in a deep cut at the north end of Section 12 is being handled entirely by a Bucyrus 70-C railroad-type shovel mounted on caterpillars. This cut has a maximum depth of 70 feet and consists of clay, shale and solid rock. Blasting is necessary in the rock and shale, and drills are kept constantly at work. Five trains, 16 cars to a train, made up of Western and Pettler 6-yard cars, and drawn by six 22-ton Porter locomotives, are kept at work to haul the material about two miles south to the fill. This fill which is on the end of the new line in Section 12, not far from the point where the new line joins the old one, is about two miles in length, and runs to a depth of 30 feet at the point where they are now working. This trestle is the last to be built, and will join the old line at a point between Beardstown and Frederick near the Illinois River. Two miles or more north of this point is the town of Frederick, through which it was necessary to build a 26-foot fill in order to attain the .25% required grade from Beardstown to Vermont. Thirty homes and a general store were purchased and destroyed when the new trestle was put in.

On Section 12 there are two public crossings, one of which is overhead in a 60-foot cut, an old railroad bridge which will be used as a wagon bridge, and the other an underground crossing in a 20-foot fill. There is also one private farm crossing in a 20-foot fill.

There is a bridge to be built over Sugar Creek in a 70-foot fill which will be 500 feet long, with concrete piers, steel towers and concrete slab decks.

The Chicago, Burlington & Quincy Railroad headquarters for the entire twelve sections of the work are at Astoria, Illinois, where all business

concerning the work mentioned before is handled. William Thomas is Engineer of Construction. The operation from his standpoint is divided into three sections, with three engineers to each section, one resident engineer, one instrument man and one rod man.

It is expected that the work will be completed and the new line operating some time in the fall. Weather conditions up to now have been so unfavorable that work at times has been almost impossible. In spite of such conditions, Morris & Dougherty have kept the work in progress, and have never completely shut down even at the worst times.

It is interesting to know, in looking over this enormous project, that thirty-two years ago J. P. Dougherty began his career with a one-team outfit. With indomitable energy and industry, his company has grown to the recognition of being one of the best-known railroad contracting concerns in existence, having been identified with some of the largest railroad projects. He organized the firm of Morris & Dougherty in 1911. Among the best-known contracts successfully handled is the construction of 250 miles of double tracking on the Chicago, Milwaukee & St. Paul Railroad between Minneapolis and Aberdeen in 1912. Another large project which they completed in 1914 was that of the Chicago, Burlington & Quincy Railroad's new line between Paducah and Metropolis, involving some 2½ million yards of excavation. During the war they built, in conjunction with George Grant & Co., St. Paul, the $10,000,000 Union Station in St. Paul. W. R. Powrie, who was superintendent of that work, is now superintendent on Section 4 of the work described in this article.

Mr. John Boyd who has charge of Morris & Dougherty headquarters at Astoria has been associated with Mr. Dougherty for 23 years. The main offices of Morris & Dougherty are at 514 Globe Building, St. Paul, Minnesota.

Digging 7,000 Tons of Sand Daily with a Diesel-Electric Elevator Dredge

Description of the Iron City Sand and Gravel Company's Dredge "Elezebeth Pfeil," the Largest Sand and Gravel Excavator in the World

(Since this article was written the dredge has been moved to the junction of the Monongahela and Allegheny Rivers)

THE quality and supply of sand and gravel are subjects that occupy the attention of every builder, whether he be interested in highways, railroads, manufacturing plants or city residences, or in fact anything else that must be constructed on a solid foundation.

The city of Pittsburgh is wanting in neither quality nor supply, for the highest grade of sand and gravel is at its very door.

This takes us to the subject of its source and how it is taken from the depths of the Ohio and Allegheny Rivers.

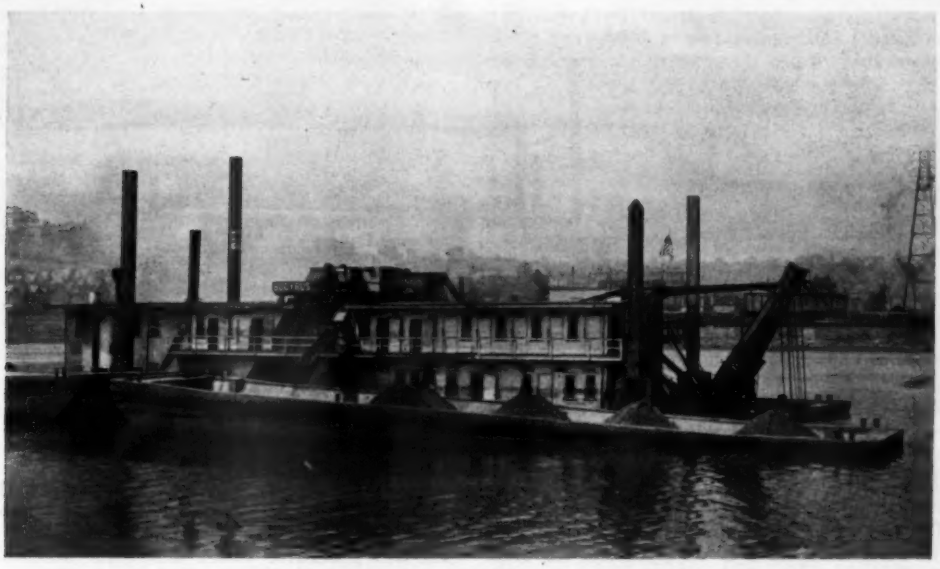
View showing the digging end. Note the boulders in the buckets and the inside-outside type lip.

The largest and highest powered dredge ever put into the sand and gravel service is the "Elezebeth Pfeil," owned by the Iron City Sand and Gravel Company, whose main offices are at 801 Bessemer Building, Pittsburgh, Pennsylvania, and whose yards are scattered all over the city of Pittsburgh.

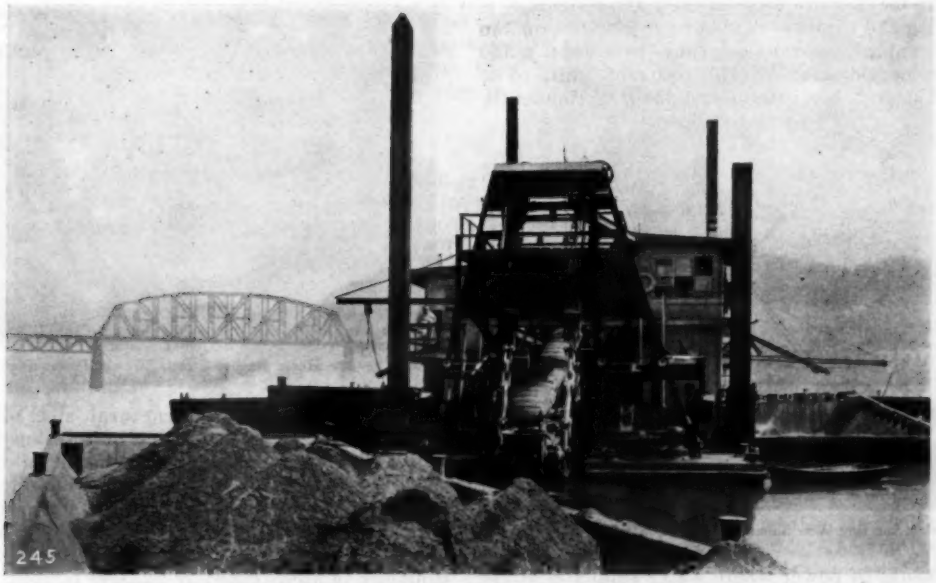
Designed and built by the Bucyrus Company the "Elezebeth Pfeil" was launched on June 22, 1922, from the docks of the Midland Barge Company, which lie just northwest of Pittsburgh on the Ohio River. This dredge was specially designed to reclaim sand and gravel from the Ohio and Allegheny Rivers in that vicinity where the Iron City Sand and Gravel Company carry on extensively the marketing of this product throughout Pittsburgh and its surrounding territory.

Description of Dredge

The dredge weighing 900 tons, with a capacity of excavating 150,000 tons of material a month, is of the elevator or ladder type, its most unusual feature being its Diesel-Electric power unit. The reason for adopting this type of unit is a practical

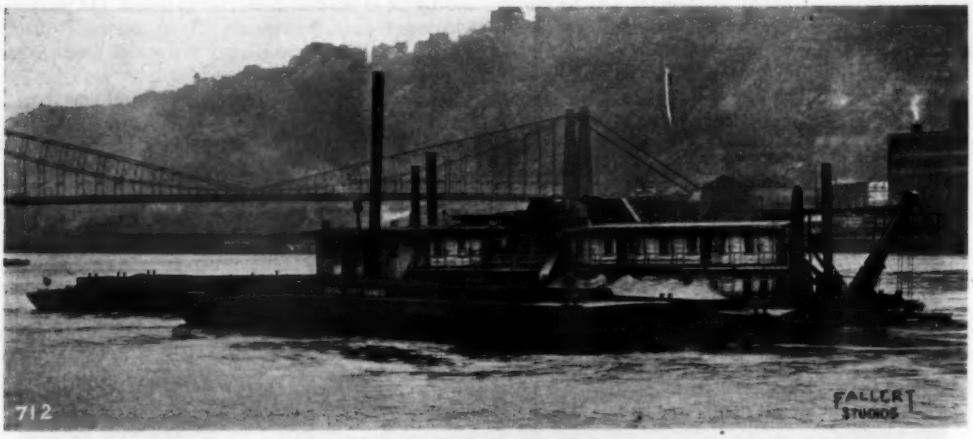


View Showing the Sand-Loading Side of the Dredge



Another View of the Front End with Steel Barges in Foreground

Views of the Iron City Sand & Gravel Company's Sand and Gravel Dredge



Another side view showing the fleet of steel barges which usually surround the dredge. Note the fuel tank barge.

one, since the "Elezebeth Pfeil" was meant for service in the water regions of the Pittsburgh district, where the impurities discharged from the various steel mills have given the water an undesirable constituent for boiler feed on steam craft.

In order, therefore, to eliminate any possibility of boiler trouble, the steam unit was abandoned in favor of the Diesel. Another reason lies in the fact that the Diesel-electric power unit can operate much more economically than steam.

With the expiration of foreign patents on the Diesel engine, enormous strides have been made in the development of this type of unit. The Diesel engine has established itself permanently

Bill Welch, the Boy Who Superintended the Erection of the Dredge

as a means of power where water supply is uncertain or undesirable, and where conditions for bringing the oil to the machine are favorable.

The Diesel unit is a 300 horse power, 4-cylinder, two-cycle, solid injection, oil-burning engine manufactured by the Worthington Pump and Machinery Corporation, and is direct-connected to a 270 k.v.a., Westinghouse, 60-cycle, 3-phase, 440-volt generator which drives the machinery of the dredge.

Description of Digging Mechanism

The digging end of the dredge consists of an endless chain of close-connected 8-cubic-foot

The 300 Horse Power Diesel Electric Power Plant

buckets mounted on a structural steel digging ladder 95 feet in length, which may be suspended at an angle of 45 degrees for a maximum digging depth of 50 feet. The buckets weighing 1500 pounds each are of nickel chrome steel castings with manganese steel lips. The complete weight of the ladder with its chain of buckets and tumblers is approximately 225,000 pounds.

The Operation

At the present time the "Elezebeth Pfeil" is operating near Brunot's Island, northwest of

Pittsburgh on the Ohio River, just below the Pennsylvania Railroad Connecting Bridge. It is said to be digging in a location where no other dredge has been able to work, owing to the extreme depth of the material and speed of the current at that point.

The material is delivered by the buckets through a hopper into a revolving screen which is 7 feet in diameter by 32 feet long over all. Here the large size gravel is separated from the rest of the material which passes on to the finer

A Peek into the Dining Room

screens. The sand screen is about 8½ feet in diameter and 16 feet long, and surrounds the revolving screen at its upper end.

The sand and various grades of gravel which are being saved are conducted by chutes to sumps in either side of the hull immediately abreast of the revolving screen, the sand going to one side and the gravel to the opposite side. From these sumps it is carried by secondary elevators to a height sufficient to discharge by gravity into the scows alongside.

Economy of Operation

Oil is brought to the dredge in a 15,000-gallon tank mounted on a special barge kept in tow. From this tank the oil is pumped to a 7,000-gallon tank located directly under the engine. The oil is then fed from the smaller tank to the engine by its own pump.

At the time this is written, 16 to 18 gallons of Pennsylvania fuel oil are being consumed per hour by the Diesel engine.

Auxiliary Equipment

For use in hauling the material away from the dredge, there are in operation 20 all-steel barges costing $10,000 each with a capacity of 700 tons each, built by the Jones & Laughlin Steel Company. Ten of these barges are of the deck type, while the others are of the hopper type.

The material is hauled to the Iron City Sand and Gravel Company's various yards in Pittsburgh. One of these yards is at 22nd Street, south on the Monongahela River, another is at 5th Street on the Allegheny River, another at 30th Street on the Allegheny River and another at Renouff Beach.

At the present time the demand seems to rest upon sand intensely, and for this reason all grades of the gravel are being rejected, the sand alone being distributed throughout the city and its vicinity with a fleet of 50 White trucks and thirty teams.

The material is sold in various sizes, the sand in one size, the gravel in three sizes, including the pea gravel or ¾-inch, the street gravel 1¼ inches, and the No. 3 which is 1¾ inches.

Personnel

The dredge was erected under the direct supervision of William Welch, an erecting engineer of the Bucyrus Company with long experience and rare ability. In conjunction with Captain Thomas Hudson, who is still in command, the construction and erection of the "Elezebeth Pfeil" has resulted in the successful and economical operation of the greatest dredge in the sand and gravel service. In regard to the performance of the "Elezebeth Pfeil," Mr. J. A. E. Hoeveler, Vice-Pres. and Gen. Manager of the Company, writes:

"The dredge has given satisfaction and is a distinct success. From both an economic and practical standpoint, its advantages, with respect to output as compared with other types of dredges in use in this district, have been amply demon-

A View of the Digging End Taken from the Top, Showing How the Buckets Hold the Material, Even with the Ladder in a High Position.

strated to be superior. It has proved satisfactory in maintaining the supply of material to meet the demands of our customers."

The entire personnel of the dredge consists of eleven men, of whom there are a captain, an operator, a chief engineer and his assistant, an oiler, an elevator operator, four deck hands, a cook and a chambermaid. The officers of the Iron City Sand and Gravel Company are: George Vang, President; Thos. B. Finan, Vice-President; Jos. A. E. Hoeveler, Vice-President and General Manager; D. C. Elphinstone, Vice-President and Treasurer and J. C. Shriver, Secretary.

Additional Views of Morris & Dougherty's 3⅓-Million Cubic Yard Contract Between

(See Article on P

A Section of the 100-foot Fill on Section 4, Showing the Dump Cars Emptying into the Fill

The 12 x 12-foot double arch concrete culv and bridge work was sublet to Pep Superior, Wisco

The upper view was taken on Section 5, showing part of the double switchback. The lower picture shows the same taken at a later date after the fill was completed.

View taken near Sugar Creek on Section 10, showing a solid rock fill. At this point the course of Sugar Creek was changed for a distance of about 500 feet.

The Bucyrus 70-C railroad-type shovel loading dump cars on Section 11. This machine is equipped with caterpillar traction.

The Piledriver at Work on the South End of the New Line Near Frederick

...een Frederick and Vermont, Illinois, on the Chicago, Burlington & Quincy Railroad

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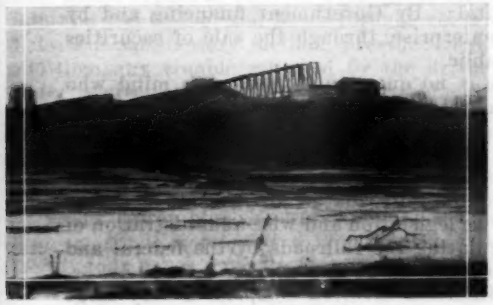
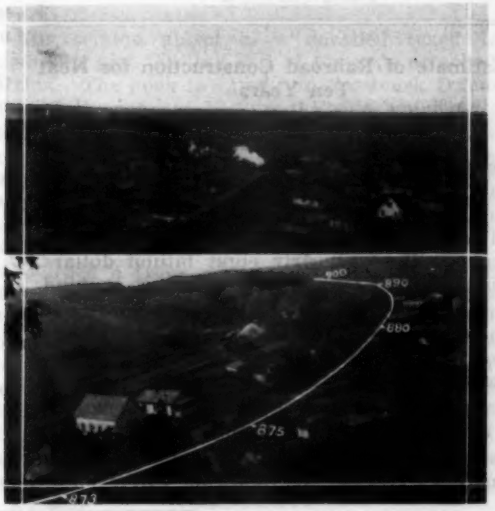
...ete culvert on Section 4. The concrete ...et to Peppard, Fulton & Co., of ...r, Wisconsin.

View Taken on Section 5 Showing the Double Switchback which Is Described on Page 177 of This Number



View of Fill on Section 6, Showing in the Background the Second Lift of the Trestle



Two views showing the town of Frederick before and after the Chicago, Burlington & Quincy went through. 31 homes and a store were purchased and destroyed before the new line was put in.

McCullough & Cheney's Contract at Sugar Creek Bridge on Section 10

Shovel Work on Section 4 — the Bucyrus 50-B 1¾-yard Shovel in Action

The Excavating Engineer

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An Estimate of Railroad Construction for Next Ten Years

According to a report of Special Committee No. 1 of the Chamber of Commerce of the United States, the passenger business of the county will increase 25% and the freight business 33-1/3% in the next ten years, and, furthermore, the additional facilities required to handle this increase in traffic will cost nearly eight billion dollars. This is a prospect for contractors to keep in mind.

These estimates were checked by means of questionnaires sent to each of the Class No. 1 railroads. Sixty-two railway companies, operating 64.6% of the total mileage of the country, filed replies to this questionnaire. The computations are considered to be conservative.

The result indicates that in order to handle the increased traffic the following extension in track alone will be required in addition to a very large amount of rolling stock:

	Miles
First Main Track.....	5,950
Other Main Track.....	11,400
Yard and Side Track.....	21,000
Total of All Tracks.....	38,350

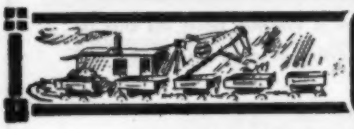
Working upon the assumption that those roads who filed their replies to the questionnaire are representative of all carriers, the railroads of the United States will require during the next 10 years $7,872,977,000 for capital expenditures. Of this over five billion is for additions and two and a half billion for improvements. This does not include the elimination of grade crossings, new safety devices and other improvements that do not help the road to handle increased traffic. This means that over $787,000,000 of new capital must be invested in railways each year for the next decade.

There are only two possible ways of securing this capital: By Government financing and by private enterprise, through the sale of securities to the public.

There is no question in anybody's mind who knows anything about the situation that the latter is the proper course.

It is, therefore, of the utmost importance that not a stone be left unturned to restore public confidence in railroads as an investment. This means wise legislation and wise administration of laws regulating the railroads by the federal and state commissions.

The interests involved comprise a very large per cent of the people of the country as well as the shippers and passengers who use the roads, the employees and investors whose welfare are largely bound up therein, and the contractors who will build these 38,000 miles in the years to come.



· FIELD NOTES ·

Reducing Truck Costs

By P. L. Sniffin

The contractor who uses motor trucks in his business often finds that truck operating costs will reach high figures before he knows it, and eat into profits, causing disastrous results. If truck costs are not watched, they will grow very quickly, and mount to sums which have not been taken into account as an expense of doing business.

One big item of cost over which the contractor has control is that of repairs, breakdowns and overhauling expense. A systematic policy of maintenance, once established, will help a great deal to keep these costs down.

Where the number of trucks operated justify the expense, it is easy to see the value of establishing a good repair shop in connection with the truck garage.

A few trucks, say up to three or four, will not ordinarily justify this expense, yet in every case provision for these items must be made with some outside service facilities. But where the number of trucks exceed this, a repair shop will pay for itself within a very short time.

There are as many methods of motor truck

maintenance as there are fleets of motor trucks. No two operators adopt exactly the same policy. There are some operators who do not believe in doing anything until something happens to the truck, saying, "Let it run until it needs repairs and then do all the work at once." These operators are usually the ones who do not maintain their own repair shops, and do not feel that it is necessary to take the truck's time, and to pay the cost of regular inspections by an outside mechanic. They neglect to consider that while the cumulative effect of troubles in their early stages seem unimportant, the time and cost of lengthy overhauls that will result are considerably greater.

In some repair shops, the work of inspection and repair is done by units, which is a satisfactory method of working. On Monday, for example, all axles are gone over; on Tuesday, the clutches; on Wednesday, the ignition, carburetion, motor supports, etc.; on Friday, the lubrication and tightening, and so on through the week. This is a satisfactory method, provided that, in addition, any trouble reported by the driver or tester is given immediate attention, whether it is on the schedule or not. One cannot tell when certain troubles will come up, and it will mean a loss of time and money to make a repair or adjustment wait its turn.

Every motor truck operator should see to it that no truck is allowed to run for more than twenty-four hours with a loose part, a part likely to break, a part needing adjustment or replacement. This means that a daily inspection should be made, or the driver consulted as to any irregularities of running. In this way any trouble is caught immediately, and before there is time for it to develop into something more serious. As pointed out above, inspection on the garage floor with the engine idling is not enough, and that is why the driver should be consulted. A knock may have developed in the engine, in a universal joint, or in the rear axle or countershaft. No doubt the knock would not cause interference with the car's operation the next day, but if it is not investigated and stopped, that knock may mean the breakage of a gear, a connecting rod, or some other vital truck part.

Dependence on a public garage or a service station is satisfactory only in one respect. It is a place where work may be done. But these stations and garages are usually not able to repair a truck and get it back to the owner in quick time. This emphasizes the importance of providing a repair shop equipped with adequate tools, and placing it in charge of a reliable mechanic where this is warranted by the number of vehicles used.

Pulling Rope for Locomotives

Breaking in or pounding down a new track over fresh fills and a soft roadbed with modern big equipment is conducive to numerous "spills," says *Engineering and Mining Journal.* If one is trying to keep a 300-ton shovel busy digging earth at the same time, something speedy is needed as a re-railing aid. The following method of using a pulling rope in conjunction with a re-railing frog was devised by George Leibig, pit foreman for the Cornwall Ore Bank Co., Cornwall, Pa.

The rope may be cut from old hoisting rope and should be about 1¼ inches in diameter and 25 feet long. Tie or clamp one end of the rope to a hook and the other to a coupling link. If tied, the first pull of the locomotive will make a never-slip knot. It is also easier and quicker to re-tie the rope than to change cable clamps if a tear occurs.

The section ahead of a derailed truck is uncoupled and the link end of the rope attached to this. The hook is caught in the truck frame back of the journal box on the side which will draw the wheels to the track. After the wheels are pulled close to the rails, the replacing frogs are used along with the rope. The side pull of the rope on the truck crowds the wheels to the rails and counteracts the overturning effect of a loaded car on the frogs.

Warped A frogs can be used and need not be blocked up or fastened to the ties. With trucks askew of the track on an extra hard pull, a second engine to shove may avoid a possible tear in the rope, and save time. Nearly any derailed car can be quickly replaced without unloading and with little damage to the track. Where a piece of track is giving trouble, the ropes are carried on the locomotives, and only 15 or 20 minutes are required as a rule for jobs that formerly took ½ to 3 hours.

Beware the man who discusses the ethics of work. The real worker is busy at his job, and is not orating.
—*Bradley Hummer.*

Growin' Smiles

A smile is quite a funny thing;
It wrinkles up your face;
And when it's gone you never find
It's secret hiding place.

But far more wonderful it is
To see what smiles can do.
You smile at one, he smiles at you,
And so one smile makes two.

He smiles at someone, since you smiled
And then that one smiles back;
And that one smiles, until in truth
You keep in smiling track.

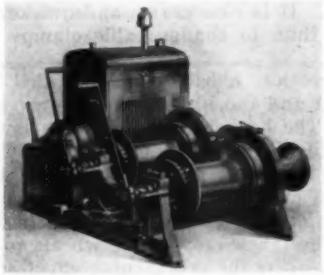
And since a smile can do great good
By cheering hearts of care,
Let's smile and smile and not forget
That smiles go everywhere.

DEVICES YOU OUGHT · TO KNOW ABOUT ·

New Gasoline Hoist a Boon to Contractors

Users of hoisting equipment, the country over, have been looking for a portable, all-around useful gasoline hoist. The Mead-Morrison Manufacturing Company, of East Boston, Massachusetts, long known as manufacturers of a complete line of steam and electric hoisting equipment, have developed a new gasoline hoist, known to the trade as the HANDIHOIST, in which are combined a number of distinctive features.

Before manufacturing a gasoline hoist on a commercial scale, Mead-Morrison engineers made a close study of the good and bad points of various



The Mead-Morrison Handihoist

types of gasoline hoists then on the market. Then experimental machines were constructed and modified to fill the exacting requirements of general contracting work.

The new HANDIHOIST is now in active use on a number of contracting jobs in the East, and has proved its ability to stand up under hard use. It is a single-drum machine, made double-drum by bolting on a second unit when desired. The hoist is equipped with cut gears, asbestos-lined frictions and brakes. It has bronze-bushed drums, machined all over. Power is supplied from a four-cylinder, heavy-duty LeRoi engine. The HANDIHOIST is easy to operate, and is adapted to scraper, derrick, elevator and general hoisting work.

For further information write to Mead-Morrison Manufacturing Company, 425 Prescott Street, East Boston, Massachusetts. Use postal insert enclosed with this issue.

The New Monarch Industrial 6-60 Tractor

Monarch Tractors, Inc., in bringing out their Model "D" Tractors have again brought out another model in their tractor line which is the latest step forward in tractor progress.

Since Monarch Tractors work the year round, winter or summer, night or day, we have met the demand for special equipment, by fitting this tractor with a completely enclosed cab, electric starter, generator, battery and lights.

To increase the comfort of the operator, we have mounted our tractor frame on three heavy silico-manganese springs. The rear spring is pivoted under the frame, and in combination with the side springs forms a flexible three-point support, preventing distortion of frame or any shock or twisting strain reaching motor and transmission.

Power Plant

The power and dependability of Monarch Beaver Engines has been proven over a long period of years. The new six-cylinder, heavy-duty motor in this tractor is the same general design as that of the successful four-cylinder we have been using. Salient features are: six cylinders, 4¾ x 6, large overhead valves, removable cylinder heads, twin cylinder blocks, force feed oiling through crankshaft, chrome nickel steel crankshaft with four main bearings, geared fan drive, tubular radiator with replaceable core, magneto with impulse starter, hand hole plates on both sides of crankcase, vacuum feed, Stromberg carburetor, electric starter and generator.

An interesting and economical feature is the fact that the pistons, connecting rods, bearings, valves, springs, etc., are interchangeable with those used with the four-cylinder engine. Distributors, dealers, and large operators will appreciate the practical advantages of this unusual feature.

Three-Speed Transmission

The transmission is designed along the same lines as the efficient unit which has been used in the Monarch four-cylinder tractor over the last three years. All parts are much heavier and stronger throughout to carry the increased power developed by our new six-cylinder engine.

Clutch

A three-plate "Twin Disc" clutch and double flexible fabric coupling transmit the engine power to the transmission. A clutch and service brake is operated in combination with the clutch lever.

Gears, Shafts and Bearings

The change gears in the transmission are forged nickel steel, heat treated. All shafts are also nickel steel, heat treated for maximum strength. Extra large Hyatt roller bearings carry the radial loads while the thrust loads are carried by heavy, double row, New Departure ball bearings.

Crawler Chassis

The several units forming the crawler chassis are the two crawlers, the main axle, radius rods,

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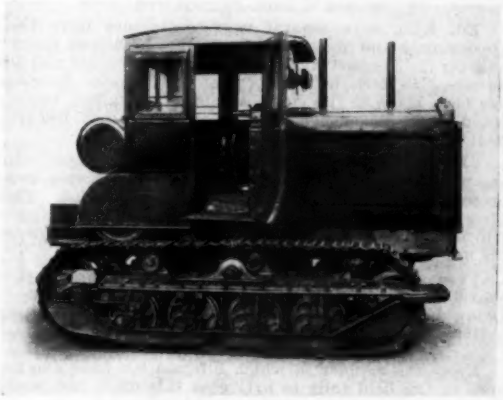
springs, pivot sprockets and drawbar. The crawlers have a built-up frame similar in design to our standard construction. The frame angles are 3½ x 3½ x ½ inches. The truss bars are 3 inches wide and ⅝-inch thick. The truck frame braces are ⅜ x 1¾-inch bars riveted together. The truck frame angles are securely bolted to the pivot bracket, spacer and rear axle brackets, and in combination with the truss bars and braces form a backbone of enormous strength for our crawler construction.

Self-Oiling Bearings

The heavy 2-inch diameter track wheel shafts run in new type self-oiling bearings with floating bushings. The method of oiling these bearings is by oil pockets carrying a sufficient quantity of oil for a day's run. The feed of this oil from the pocket is controlled by a felt filter which allows the oil to seep through maintaining a constant feed of oil to the bearing. This oil pocket is located above the bearing and provides a gravity feed and positive lubrication. The hubs of the track wheels are extended out to partly enter the journal boxes, and have heavy felt packing pressed between their faces and the counter bore of the journal boxes. Replacement of the bearing in this journal box has been made a simple operation. The bushing floats in the journal box and it is only necessary to take out four cap screws, pull out the bearing box and replace the bushings. No fitting or mechanical adjustment is required — the only tool needed is a wrench.

The track sprockets are cast chrome-nickel manganese steel, heat treated for requisite toughness and wearing qualities. The rear track and chain drive sprockets are a press fit on a hardened and ground nickel steel shaft. These sprockets and shafts make a unit assembly, which is carried in the rear axle bracket and rear radius rod heads by split bronze bushings. These bearings



The New Monarch 6-60 Tractor

are lubricated by the same type of filter gravity feed as used on the track wheel bearings.

Further information concerning the above equipment may be obtained by writing to Monarch Tractors, Inc., Watertown, Wisconsin. Use Excavating Engineer post card inclosed with this issue.

SHOTS FROM THE FIRING LINE

Central States Notes

BY M. J. WOODHULL

L. A. Fortner is operating a Bucyrus 320-B at Centertown, Kentucky, for the Morison Coal Company. He says he likes the Big Boy.

We have word from A. S. Dickson who is pulling the levers on a 30-B Bucyrus for Brooks-Calloway, Bauxite, Arkansas.

Iowa and Missouri

BY W. G. PARROTTE

Norton Bros. of Kansas City have one of their shovels working on the extension of The Paseo at 21st Street.

The Canota Construction Co. of Tulsa were low bidders on 117,000 yards of Missouri road work at Jefferson City, February 21st. This letting was broadcasted by radio at the opening of the bids.

List & Gifford, Kansas City, have started on 70 miles of second track for the Santa Fe in New Mexico.

W. C. Hogan, Ray Benard and Slim Williams are operating the machines for Higgins, Wall & Dyn on the rivers De Perre work at St. Louis.

W. C. Hill of Omaha has taken over the river De Perre work at Delmas and Wabash tracks at St. Louis for Henoke Construction Co.

Bob Childers is operating the Osgood 18 owned by Advance Wrecking Co. of St. Louis on city work.

J. J. Ziegenhagel is operating a Bucyrus 70-C shovel loading shale for the Rock Island at Numa, Iowa. Crowley-Ryan Construction Co. are the contractors. H. Bingham is cranesman and M. W. Herder is fireman.

Minnesota

The Marquette Ore Company, Ironton, Minnesota, who now have a set of caterpillars under their 88-C Bucyrus, are going strong with S. E. Lind, master mechanic, and James Howard Smith, assistant master mechanic, on the job.

New York and Vicinity

BY T. A. BURNS, 1175—50 CHURCH STREET, NEW YORK, N. Y.

Clifford MacAvoy has moved his two Bucyrus 60-C's on the new Wanaque Reservoir job at Wanaque, New Jersey. In addition to this he is putting on three Eries.

As a mechanical superintendent Mr. Macdonald is a most active man in that part of the country at present and it isn't mosquito season yet, either.

Ed. King says several new contractors have been appearing in and about New York since he helped make a hole for the Pennsylvania Railroad at 33rd Street and 7th Avenue. In fact, he admits that considerable progress has been made in the city. Among other things Tommy Hand, then his craneman, now owns his own Bucyrus 20-B in Brooklyn.

"Jimmy" Fallon is now back on the "Buckeye." He and a good looking young man, whose name escapes us at present, are on C. D. Beckwith's latest requisition. This aforementioned contrivance is equipped with a dipper trip which allows the fireman plenty of time to powder his nose.

Fred Spatz, Jr., and F. L. Sost have purchased a shovel, and are developing Mr. Spatz's properties at Delawanna. This is for the information of certain individuals who state it cannot be done.

From the manner in which information from the fellows in the field fails to arrive at this office one would say that this was one of those publications charging for publicity. This is to assure all Scotch shovel operators that their photographs will be published free of charge upon request.

Northwestern States Notes

BY A. R. HANCE, PORTLAND, OREGON

Approval of plans and specifications of three proposed highway projects has recently been received by the Idaho State Highway Bureau. It is thought that the total cost of the three will be $215,000. Two of the projects are in southern Idaho and the other in the southeast. One project calls for construction of a section of the Old Oregon Trail. Another begins at Hansen in Twin Falls County and continues east, a distance of 14 miles. The third project is in Bear Lake County, and constitutes the construction of eight miles of highway.

The Montana State Highway Commission will receive bids for the construction of the $200,000 Federal road between Carlow and Browning. With the building of the road this year between these points, and with the extension of it to Cut Bank next year, which is without doubt the intention of the Government, Glacier County will have one of the finest highways along the Roosevelt Trail, from Duluth to Glacier National Park. Despite the fact that the Arlee-Ravalli Road is the subject of a dispute as to whether 100 per cent Federal Aid should be granted, the State Highway Commission has decided to construct a four-mile section from Arlee west to the point where the road passes under the railroad bridge after passing the Ocko River.

Approximately $1,000,000 will be available for road construction in Rainier National Park if Congress takes favorable action on the National Parks Committee's recommendation for $7,500,000 for road construction in national parks throughout the United States.

Final approval of the application of the Missoula County Commissioners of Montana, for construction of a section of the Nine Mile Road, has recently been received. The highway, which will be constructed from Section 8 funds, is a four-mile stretch between Huson and Alberton. It will eliminate the Milwaukee grade crossing, just west of Nine Mile. An under crossing will be put in. It is estimated the cost will be $82,000. Missoula County will have to furnish some co-operation, which was agreed upon before application was made. This road is located not far from the Tarkio Flats Section, which was approved at the meeting in Helena in January. At that time forest funds were provided for the construction of this section. Both projects are located on the Yellowstone Trail.

A contract for building additional highway under Federal Aid from the present limit of the Pine Creek Highway, is to be advertised for in the near future. This project will be known as Federal Aid Project No. 59, and extends for a distance of approximately three miles from the end of the present Pine Creek Road. This is one of the two new projects which will be constructed or partially constructed during the year 1924. The other is the Yankee Jim Canyon Road, between Carbella and Crowin, funds for which have been provided by the United States Forestry Service. These two projects, together with the Federal Aid Project of Shields River, will total approximately 23 miles of new road highway under construction.

Contractor Pat Welch of Spokane has been awarded a contract by the Bloedel-Donovan Lumber Company, calling for the construction of 17 miles of logging railroad on the Olympic Peninsula between Clallam Bay and Beaver Beach, south of the Sol Duc River. Work will be started at once by Contractor Welch, who will maintain offices in Seattle and Clallam Bay. The road will have two truss bridges of 150 and 100 feet and one 280-foot tunnel. Seventy-pound steel will be laid. The highest elevation is at Pysht Pass, 760 feet above the sea.

Contract for surfacing nine miles of highway between Orofino and Greer, Clearwater County, was awarded to R. A. Burns of Lewiston, Idaho, for $36,313.02.

Pacific Coast News

BY P. H. BIRCKHEAD, SAN FRANCISCO, CALIFORNIA

The Red Rock Irrigation District at Ravendale, Lassen County, has been authorized by the Board of Supervisors of Lassen County to hold a Bond Election to vote on issuing bonds in amount of about $1,000,000 to finance the construction of an irrigation system for the District. Plans call for: Storage Dams—Several rock and earthfill dams to be built; Canals—About 50 miles of canals, mostly distribution canals. This District embraces about 23,000 acres of land in Lassen County. Thos. H. Means, 58 Sutter Street, San Francisco, is consulting engineer. Bonds of the District have not yet been approved by the State Bonding Department.

Bond election will be held by the City of San Diego, San Diego County, May 20th, with reference to voting bonds as follows for municipal improvements: $3,500,000 for construction of additional dams, etc., on the city water impounding system; $225,000 for completion of Municipal Pier No. 2 and $250,000 for further harbor development. Allen H. Wright is City Clerk.

Contract has been awarded to John Phillips, 637 Santa Ray Avenue, Oakland, for the construction of canals for Reclamation District No. 108, Colusa County.

The Morrison-Knudsen Co., 302 Broadway, Boise, has been awarded a 90-mile subcontract by the Utah Construction Co., General Contractors, for double-tracking on the Western Pacific Railway between Winnemucca and Palisade, in Nevada. Work will involve widening to grade and laying ties.

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Contracts awarded by the Southern Pacific Co., San Francisco, to the Utah Construction Company, Phelan Building, San Francisco, for the construction of two tunnels at Yuba Pass, California, on the Sierra Route, one tunnel to be 310 feet long and the other to be 699 feet long, both to be concrete lined.

Contract awarded to Utah Construction Co., Phelan Building, San Francisco, for the construction of a two-mile tunnel at Summit, Sierra Route, Southern Pacific Railroad, California. Contract has not been signed.

John Phillips, Oakland contractor, has recently started work on some ditches for District 108 near Arbuckle, California. In order to complete the work in record time he is using three machines, which are a Stockton ¾-yard dragline, a Keystone excavator and a new 20-B Bucyrus gasoline dragline, which has just been purchased. On the day shift of the 20-B, Frank Erickson is operating with George Stancey as oiler, and on the night shift J. W. Shaw is operator and E. E. Johnson is oiler. Arthur Jones and R. L. Evans are handling the two shifts on the Keystone, and Arthur Jones is in charge of the work for Mr. Phillips.

California

W. M. Smith, San Francisco, is making a Marion 40 hum at Big Creek, California, for the Southern California Edison Company.

John Harvey is taking a vacation. His present address is 325 Fernando Building, San Francisco, California.

Mike Kuhlman writes us he has left California for an indefinite period, where he was operating a Bucyrus 30-B for the Western States Gas & Electric Co. at Big Creek. He is now at his home, 14 Ludlow Street, Hamilton, Ohio.

Pennsylvania Coal District

BY J. W. MACDONALD, HOTEL LOUGHRAN, HAZLETON, PENN.

J. Robert Bazley has recently acquired an extensive contract covering about five million yards of stripping from the Cranberry Creek Coal Company. Mr. Bazley will operate on this work a 320-B Bucyrus electric shovel. It is our understanding that work will begin at once.

Ray Bitner and Norman Bile are operating 103-C electric shovels at Bethlehem for the Bethlehem Mines Corporation. This is one of the largest dolomite quarries in Pennsylvania and produces principally fluxing stone for the Bethlehem Steel plant.

In addition to the fluxing stone a very fine product of commercial stone is also crushed, and we understand from Mr. J. P. Peacock, superintendent, that the demand for this exceptional quality of stone is greater than they are able to supply.

The Rhoads Contracting Co. of Ashland, Pennsylvania, were recently awarded a contract by the Philadelphia & Reading Coal & Iron Co. for one of the largest anthracite stripping operations in the region. The total estimated yardage of the entire job, which is located at Locust Gap, Pennsylvania, is 8,000,000 yards.

Mr. Chas. Strouse, general manager, and Mr. Louis Wolfgang, general superintendent, are busily engaged at present getting the necessary equipment on the ground, as the work is to be started at once.

The Craneberry Creek Coal Co. of Hazelton, Pennsylvania, which recently purchased a Bucyrus 320-B electric shovel for their new stripping operation in this district, is making rapid headway with the preliminary work preparatory to the erection of the shovel which is en route.

Mr. Walbridge, superintendent, and Mr. Stockdale, master mechanic, are supervising the work. This work will be watched with great interest by all operators and engineers in this region, as this is the largest shovel that has been used in this field, its working range being approximately twelve times as great as the railroad type now in general use here. This new shovel will take in one cut a section equal to that which with the old railroad type it would be necessary to make twelve cuts.

Pittsburgh and Vicinity

BY FRANK B. SMITH

The Diamond Portland Cement Co., Middle Branch, Ohio, is contemplating opening up a new quarry at their plant at Middle Branch, and anticipate electrifying the entire shovel operation. They are at present operating a Vulcan standard, also a Marion 95 and a Marion 32 electric. They also use a cantilever for disposing of material. Their idea is to put this machine on caterpillars. Mr. H. D. Raff is superintendent of this operation.

The Westmoreland Limestone Co., Pittsburgh, Pennsylvania, has purchased this week a Bucyrus 20-B Diesel oil shovel for their quarry operations in Westmoreland County. Mr. Craig, the president of this company, after careful consideration of gasoline machines, decided that from the economical operation and the simplicity of this machine that it was more suited for quarry work, also the elimination of water conditions. Mr. Craig furnishes stone to road contractors and other building industries.

The Duquesne Slag Products Co., Pittsburgh, Pennsylvania, purchased a 30-B Diesel oil dragline the middle part of last summer, which has been in continuous operation from the time of purchase. Mr. Reed, purchasing agent of this company, states that after using this machine continuously, the only item of expense that they have had has been a broken bracket on the fan. As for economy of fuel and ease of operation, they are more than satisfied with it. Mr. Reed says that one of the big advantages of the Diesel oil machine on their work is the flexibility of moving this machine from one job to another without losing any time on water or fuel.

Southern States News

BY C. N. BALLENTINE AND W. W. WHORLEY, BIRMINGHAM, ALABAMA

F. M. Jones & Son, Savannah, Georgia, are busy on their double-track work for the Atlantic Coast Line near Yemassee, South Carolina. Mr. O. M. Jones is superintendent in charge. Thad McAllister is running a Marion 50.

Considerable interest in the Birmingham District has been caused by the recent formation of the Deep Water Coal Company. This Company has secured holdings in six counties of coal-bearing lands, and according to Mr. L. B. Musgrove, vice-president, intend to begin developments in the near future.

Contract for the construction of the Columbus Viaduct on the Central of Georgia Railway was recently let to the Davis Construction Company of Atlanta, Georgia. The concrete work will cost approximately $250,000. The steel span in this bridge will be erected by the Virginia Bridge and Iron Company, making the total cost of this structure about $385,000.

Stanley & Singer, Lafayette, Alabama, were low bidders for grading a road project in Baldwin County, 25 miles long, from Little River to Stockton. The bid amounted to about $109,000. The bridges on this project were awarded to F. D. Harvey of Memphis, Tennessee.

G. F. Todd is handling an Erie Shovel of the Clinchfield, Portland Cement Company, at Kingsport, Tennessee. C. H. Carmack is keeping things hot.

Contracts for road work in eleven counties were let at Nashville, Tennessee, on April 4th; most of these projects were located in East Tennessee, the most important being the following:

Federal Aid Project No. 82, Anderson County, consisting of the grading and drainage of 8 miles of State Road No. 9 between Clinton and Knox County Line, awarded to Smith & Creech Construction Co. of St. Louis. $120,000.

Federal Aid Project No. 98, Sullivan County, consisting of the grading, drainage and plain concrete pavement, 18 feet in width, of 8-3/10 miles of State Highway No. 1, between Bluntsville and Bristol. Bids for three small bridges were included with the road proposal, awarded to Smith Brothers, Dallas, Texas. $257,000.

State Aid Project No. 133, Jefferson County, consisting of grading, drainage, crushed stone base and bituminous macadam surface, 16 feet in width, extending 8.3 miles on State Road No. 34, from New Market to the Knox County line, awarded to Baird Eller Construction Co., Nashville, Tennessee.

State Aid Project No. 160, Hamblen County, consisting of grading and drainage of 3.1 miles of State Road No. 32, between Morristown and the Grainger County Line. awarded to R. S. Freeman, Knoxville, Tennessee. $35,000.

State Aid Project No. 161, Roane County, consisting of grading, drainage, crushed stone base and bituminous macadam surface, 18 feet in width, extending 4.1 miles on State Road No. 31, awarded to J. F. Marcum & Company, Knoxville, Tennessee. $110,000.

State Aid Project No. 164, Grainery County, consisting of waterbound macadam surfacing, 9 feet in width, 5 miles of State Highway No. 32, awarded to W. C. Anderson, Harriman, Tennessee. $36,000.

St. Louis Items

BY A. B. KOENIG

S. P. Dacey reports a rock and small team outfit idle at Hooker, Missouri.

T. E. Newell has been resting up his outfit at Marion, Illinois. He has 9 good teams ready to go to work at once and prefers railroad work.

Addison Miller, Inc., of St. Paul, have taken over all the coal chutes on the Missouri Pacific Railroad.

F. R. Denison of Walter Denison & Sons was with us last week. They expect to finish their levee job at Newport, Arkansas, shortly. They will have a big grading outfit idle.

The John T. Walbridge Engineering Co. of Chicago has been awarded the general contract for the new waterworks in Litchfield, Illinois, and the contract for filter equipment has gone to the F. P. Leonard Company of Pittsburgh, Pennsylvania. The waterworks contracts amount to about $300,000. Work will begin immediately.

Frank J. McCaughey of the J. J. McCaughey Co., Chicago, passed through here on his return from a five weeks' visit to Florida and Havana, Cuba. Frank didn't get through praising this country and "Oh Boy" what good stuff in Cuba, which is some inducement to leave the States in the winter months. The McCaughey Company have contract for grading Marquette Park in Chicago, 600,000 yards of earth to be moved. They have 8 caterpillars, 5 machines and shovel outfit on it and expect to finish December 1st.

Mulvill Bros. have resumed operations on the Chicago & Alton double-track work near Shipman, Illinois.

Littrell & Sprague have been incorporated at Springfield, Missouri, to do a general construction business. The incorporators are: Yarnold R. Littrell, Marjorie E. Littrell, Howard B. Sprague and A. R. Sprague.

W. L. Price started work on March 25th on the north end of Section B of the Batesville and Mamoth Springs Road in Arkansas.

The E. K. Ladd Construction Co. of Kansas City has been awarded contract to construct the sewerage disposal plant at Palmyra, Missouri.

Joseph K. Golike, formerly of Golike & Rust, contractors, died at West Alton, Missouri, on March 17th.

Edwin C. Bartling, construction foreman for Webb-Kunze Construction Co. at St. Louis, is still on the job and going strong. L. F. Haag is superintendent.

Miller & Harris Bros. Construction Co. of Shelby, Mississippi, were awarded a 6½-mile drainage and ditch contract in Jackson County, Arkansas.

Tritt Bros., Belleville, Illinois, were awarded state highway contract, Route 13, Section 22, in Randolph-St. Clair Counties, Illinois. This road starts at Marissa, Illinois.

Tibbets & Pleasant of Tulsa, Oklahoma, were successful bidders for the Missouri Valley Tunnel, which will be a part of the new waterworks system in Kansas City. Byrne Bros. of Chicago received the contract for two drainage tunnels.

A. B. Kremp, Jasper, Indiana, is in need of a 10-team outfit for grading work on State Aid Project in Indiana.

J. W. McMurry Contracting Co. were awarded contract by the Frisco Railroad Co. for driving piles in North Canadian River near Oklahoma City, Oklahoma. They are shipping one piledriver on to this job.

There are twenty-nine projects for road construction involved in the bids to be received and opened by B. H. Piepmeier, State Highway Engineer at Jefferson City, Missouri, April 22nd. These twenty-nine projects cover approximately one hundred miles, and there is about an equal division between graded earth construction and gravel surfacing. The projects cover sixteen counties, one of which, Lafayette County, will obtain about one-fourth of the total mileage, six of the twenty-nine projects being advertised for letting in that county. The amount of money involved in these contracts will total one and one-half million dollars. In nearly every instance state furnished material, such as gravel, sand and cement, will figure in the awards to be made.

M. E. Paxton, formerly Vice-President and General Manager of the J. J. Grier Company, Kansas City, has resigned and formed an association with Geo. J. Conley to become business manager of the New Lakeside Hospital now under construction in Kansas City. Paxton was with the Grier Company for more than thirty years, and is well known to all connected with railroad business.

The contract to grade and repair sections of the Little Rock-Hot Springs Highway, between Red Gates Inn, and Hot Springs, Arkansas, was awarded to A. V. Martin of Benton, for $22,766.24, the lowest bid submitted. The work is preliminary to the paving, the general contract for which was cancelled, and which will be re-awarded after opening bids April 24th.

P. J. Hannan has been in Hot Springs for several weeks. His return is looked for daily.

UMI

W. F. Woodruff, Bedford, Indiana, has a 10-team outfit idle.

A. Ross has resumed work on his paving and road contracts in Western Missouri.

Eugene Keller, Peruque, Missouri, has good rock outfit idle that he would like to place on work in this neighborhood immediately.

Contractors when in want of work or labor for their outfits write or wire Koenig Labor Agency, 612 Walnut Street, St. Louis, Missouri, or 501 Delaware Street, Kansas City, Missouri.

Charley Stoner is stripping a gravel pit at Pekin, Illinois. He will finish in a few weeks and is looking for a grading job.

Paddy McGraw is scouting around for a job suitable for an 8-team outfit. 2232 McCausland Avenue, St. Louis, will catch him.

The Harrington Brothers, Patrick J. and Geo. F., and their sister, Mrs. P. M. Riley, have our sincere and heartfelt sympathy in the death of their mother, followed a couple weeks later by the death of the youngest brother, Thomas J. Tom contracted pneumonia, which resulted in his death several days later.

Canada

Montreal and Vicinity

BY J. M. WARD

The Bucyrus Company is noted for living up to its promised deliveries. We would like to see some co-operation between the Bucyrus Company and the Weather Bureau. Fancy the weather man delivering snow in the middle of April. It certainly has a retarding effect on construction.

The Federal Government is at present considering estimates on Branch Lines on the Canadian National Railways. If these are finally passed by the Senate it will give an added impetus to business in railway construction.

The Foundation Company, who are working on power development for the Southern Canada Power Company at Hemming Falls, Quebec, have installed a 14-B Bucyrus on this work.

Louis Ott has purchased his second 20-B Bucyrus and is considering the purchase of a third one. Ever since he had his first 20-B last year he says there is nothing to beat it.

We had a visit this week from an old friend, Phil Rouse. He came on here to set up a 20-B shovel for Louis Ott. This is the second shovel he has put up for Mr. Ott, who insists that nobody else be sent.

The Nova Scotia Government has awarded contracts for their Ruth Falls Power Development to Wm. Cooke, North Sydney, and the E. F. Powers Construction Company and Reid, Farnsworth & Shaffner of St. John.

Winnipeg and Vicinity

BY F. X. AMOSS

Mr. E. W. Beardsley and Mr. Norman Smith, have left for Rowan, Ontario, to operate one of Mr. Tomlinson's shovels on his contract at that point.

Owing to the early spring, it is anticipated that ballasting and train-filling operations on the railroads will start very much earlier than usual this year.

Carter-Halls-Aldinger Company have just been awarded the contract for the Government elevator at Edmonton, Alberta.

A deputation, headed by Premier Bracken of Manitoba, is at Ottawa urging the completion of the Hudson's Bay Railway. Western Canada is apparently very anxious to have this new outlet for grain completed at an early date, and representatives have been here from the Northwestern United States, as they, too, are vitally interested.

The Canadian Industrial Alcohol Company are going to build a large plant in St. Boniface, Manitoba, in the very near future.

Two cars of Saskatchewan lignite coal, shipped to the briquetting plant a Hebron, North Dakota, for experimental purposes by the Lignite Utilization Board, have been returned to the Province in the form of briquettes. From all appearances, the experiment was a complete success, and much interest has been shown in the appearance of the briquettes. One car has been forwarded to the Bureau of Labor and Industry at Regina, and the other to the Lignite Utilization Board at Bienfait.

Vancouver and Vicinity

BY J. C. MOON

The Pacific Construction Co., Ltd., have lost no time in making a start on the new elevator for the Terminal Grain Company of Vancouver; the excavation is well under way and concrete pouring will start at an early date; everything points to new records being established on this job. Mr. Cook is directing this work.

Several large Government contracts have just been let including a group of eight semi-permanent buildings for the University of British Columbia, which were awarded to the E. J. Ryan Construction Co., Ltd., of Vancouver, the amount being in the neighborhood of $700,000.

The British Columbia Electric Railway Co. are inviting bids from a selected list of contractors for a tunnel to connect Alouette and Stave Lakes in connection with their power plant extension at Stave Lake.

Greater activity is being shown in mining circles than for some years past and the chief features are the revival of alluvial gold mining in the Cariboo District and interest in Silver Lead in the Kootenay District.

TRADE NOTES

Bucyrus Company Announces Promotions

The Bucyrus Company of South Milwaukee, Wisconsin, announced on May 8, 1924, the following promotions:

G. A. Morison, Secretary and Sales Manager, was appointed Second Vice-President In Charge of Sales, in addition to his title of Secretary; D. P. Eells, Treasurer and Manager of Foreign and Export Department, was appointed Second Vice-President In Charge of Foreign and Export Department, in addition to his title of Treasurer; Wm. Bager, Chief Engineer, was appointed Second Vice-President In Charge of Engineering.

Miss G. A. Peters, formerly with the New Orleans Equipment Company, has gone into business for herself, her office being 630 Audubon Building, New Orleans, Louisiana.

Miss Peters is now taking orders for road-building and general contracting machinery, and in a short time has built up a splendid business.

REVIEW OF BOOKS and CATALOGS

We shall be glad to review, in this column, such books and catalogs as are sent to us.

For the purpose of giving the warehouse trade information, which has been collected during a year of investigation, concerning the maintenance and profitable operation of motor equipment, the General Motors Truck Company, Pontiac, Michigan, has prepared a new booklet, "Warehouse Transportation," for free distribution to warehousemen.

The booklet contains data on the tractor-truck and trailer system of transportation, selection of bodies capacity weight tables, operating costs, a base rate table for local and long distance hauling, Federal and State legislation, and truck specifications.

It discusses these problems from the viewpoints of companies engaged in local and long distance moving of household goods, the furniture warehouseman, the general merchandise warehouseman, and the warehouse handling all classes of storage.

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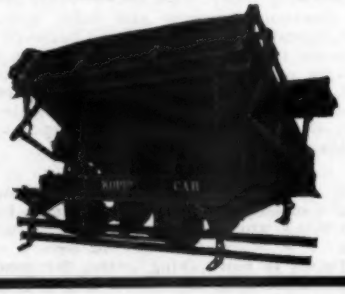

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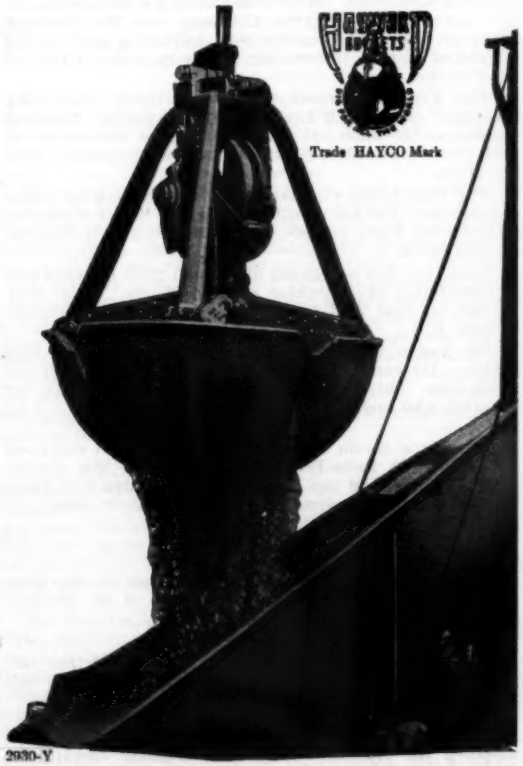

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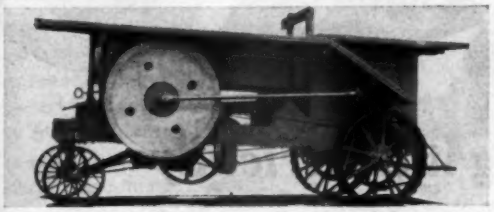

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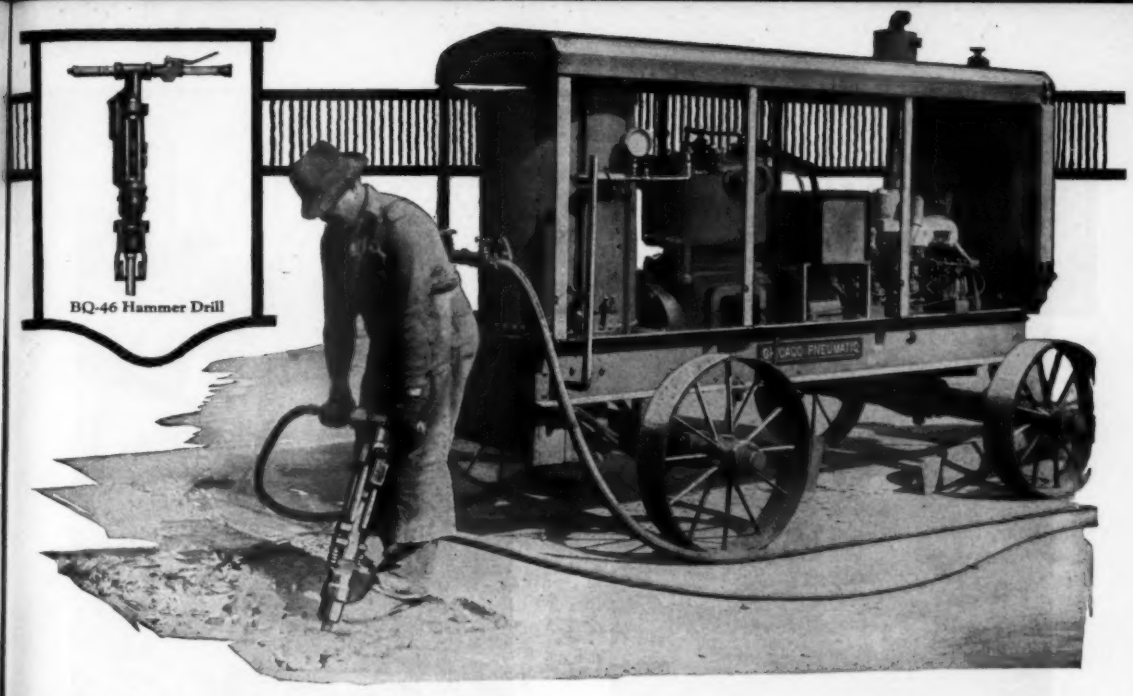

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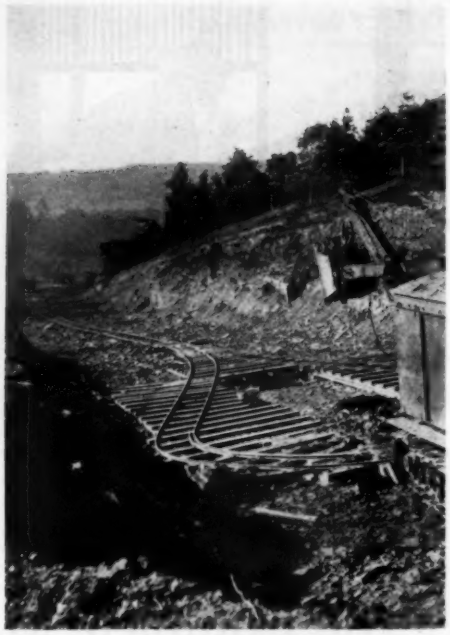

Two views of the ingenious turn-around which Mr. Jones devised for his work. This device may be moved ahead with the shovel as the work progresses, being built on a movable frame. This method enables the locomotive to haul three 4-yard heavy-duty Western dump cars to the dump while three others are being loaded at the shovel.

Another View of the Turn-around showing the Bucyrus 30-B Shovel Loading into 4-yard Western Dump Cars.

The Dump, Showing Part of the Falsework

Views of Jason D. Jones' 70,000 Cubic Yard Highway Contract in Jackson County, Iowa